

103201

232017

103.3.1 Chronic Toxicity

Data Review Number: ES W2

Test: Avian Reproduction Wild Waterfowl

Species: Mallard Duck (Anas platyrhynchos)

Results: Z-9-tricosene was fed to mature Mallard ducks at dietary concentrations of 0.1 ppm throughout the One-Generation Reproduction Study and had no effect on the overall reproductive success of birds.

Based on the results of this study, environmental levels of up to 0.01 ppm of Z-9-tricosene do not present a reproductive hazard to the Mallard duck.

Chemical: Muscamone (Technical Z-9-tricosene)

Title: One-Generation Reproduction Study - Mallard Duck
Z-9-Tricosene Final Report

Accession No.: 232017 SAME AS 229393

Study Date: August 28, 1975

Researcher: Wildlife Research Division, Thuron Industries, Inc.

Registrant: Thuron Industries, Inc.

Validation Category: Supplemental

Category Repairability: Yes. The Environmental Safety Section needs to be provided the raw data for penned birds/cage/day/week of eggs set for all listed reproductive parameters. The data is required in order to check the statistical analysis of this data. Test procedures for this study as listed appear adequate.



ADDITIONAL INFORMATION:

Reproductive Data - Mallard Duck	Controls	Z-9-tricosene (ppm)	
		0.1 (94.7%)	0.1 (63.1%)
Eggs Laid	909	932	955
Eggs Cracked	15	11	11
Eggs Set*	854	881	904
Viable Embryos	811	832	850
Live Three-Week Embryos	799	818	841
Normal Hatchlings	555	528	591
Fourteen-Day-Old Survivors	553	524	585

* Excludes those cracked and those removed for eggshell thickness analysis. The above differences were not statistically significant ($p < 0.05$).

	Expected Values	Controls	Z-9-tricosene (ppm)	
			0.1 (94.7%)	0.1 (63.1%)
Eggs Laid Per Hen In				
Eight Weeks	28 - 38	36.4	37.3	38.2
Eggs Cracked of Eggs				
Laid (%)	0.6 - 6%	1.6	1.2	1.2
Viable Embryos of Eggs				
Set (%)	85 - 98%	95	94	94
Live Three-Week Embryos				
of Viable Eggs (%)	97 - 99%	98	98	99
Normal Hatchlings of Live				
Three-Week				
Embryos (%)	50 - 90%	69	64	70
Fourteen-Day-Old Survivors				
Of Normal				
Hatchlings (%)	94 - 99%	99	99	99
Fourteen-Day-Old				
Survivors Per Hen	11 - 14	22.1	21.0	23.4

Statistical analysis based on data in Table 1a.

* The above differences were not statistically significant ($p < 0.05$).

Eggshell Thickness Data - Mallard Duck Controls Z-9-tricosene (ppm)
0.1 (94.7%) 0.1 (63.1%)

Number of Eggs Analyzed	40	40	40
Mean Shell Thickness (mm)	0.350	0.341	0.346

The above differences were not statistically significant ($p < 0.05$).

Z-9-Tricosene
Eggs Jarch Mallard
No sign diff (P=0.05) ^{EM} 6
Wildlife Int

C.
184.
173.
217.
186.
145.

control

181.8
482.96

142.
175.
194.
206.
213.

0.1 ppm
94.7%
A.I

186.4
666.64

174.
170.
181.
196.
232.

0.1 ppm
63.1% A.I

191.
512.

.1528165623 < F3.87
2. n.d.f
12. d.d.f

8306. E SS²
211.6 TSS²
8519.6 Tot SS²

Z-9 Tricosene
Eggs Set. Mallard
No sign diff (P=0.05)
Wildlife Int

C. PGM
6

C.
10.
159.99
176.
1.

DP
17

155.
2.
204.
3.
176.
4.
139.
5.

control

170.8
170.8
461.36

461.36

136.
163. 0.1 ppm
186.
195. 94.7% A.I
204.

176.2
652.56

Z-9 Tricosene
Viable Embryos Mallard
No sign diff (P=0.05)
Wildlife Int

171.
136.
201.
170.
133.

control

162.2
636.56

127. 0.1 ppm
152.
174. 94.7% A.I
187.
192.

166.4
579.44

158.
155. 0.1 ppm
161.
184. 63.1% A.I
192.

170.
226.

.1268238558 < F3.89
2.
12.

7210.
152.4
7362.4

Z-9 Tricosene
Live Three Week Emb
Mallard
No Sign diff (P=0.05)
Wildlife Int

169.
135.
198.
166.
131.
Control

159.8
605.36

127.
151.
172.
185.
183.
0.1 ppm
94.7% A.I.

163.6
480.64

157.
153.
159.
183.
189.
0.1 ppm
63.1% A.I.

168.2
218.56

.1627521924 < F 3.89

2.
12.

6522.8
176.9333334
6699.733333

Z-9 Tricosene
~~Live~~ Normal Hatching
Mallard Duck
No Sign diff (P=0.05)
Wildlife Int.

117.
88.
142.
120.
88.
Control

111.
427.2

89.
75.
111.
135.
114.
0.1 ppm
94.7% A.I.

105.6
389.44

112.
93.
119.
113.
154.
0.1 ppm
63.1% A.I.

118.2
396.56

.3952522255 < F 3.89

2.
12.

6066.
399.6
6465.6

Z-9 Tricosene
14 Day Old Survivors
Mallard Duck
No Sign diff (P=0.05)
Wildlife Int.

40.
75.
93.
94.
75.
53.
68.
47.
Control

69.125
372.859375

25.
68.
72.
87.
70.
72.
75.
51.
0.1 ppm
94.7% A.I.

65.5
275.75

53.
103.
67.
91.
75.
75.
57.
60.
0.1 ppm
63.1% A.I.

73.125
265.609375

.3341480089 < 4.32

2.
21.

7313.75
232.75
7546.5

Z-9 TRICOSENE
Shell Thickness Mallard
No Sign Diff (P=0.05)
Wildlife Int.

0.35
0.353
0.358
0.357
0.351 control

0.3458
0.00004056

0.342
0.316 0.1 ppm
0.352
0.357 94.7% A.I.
0.326

0.3406
0.00020544

0.334
0.341 0.1 ppm
0.336 63.1% A.I.
0.374
0.346

0.3462
0.00021056

.5649202751 < F 3.89
2.
12.

0.0022828
.0002149333
.0024977333